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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/608,417	06/30/2000	Reed J. Sloss	042390.P8795	9524

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EXAMINER

DUONG, THOMAS

ART UNIT	PAPER NUMBER
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2145

DATE MAILED: 03/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/608,417

Applicant(s)

SLOSS, REED J.

Examiner

Thomas Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-16 and 22-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-16 and 22-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Request for Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.
2. Amendment received December 16, 2004 has been entered into record. *Claims 1-8, 10-16 and 22-24* remain pending.

Response to Amendment

3. This office action is in response to the applicants Amendment filed on December 16, 2004. Applicants amended *claims 1-14 and 22* and canceled *claims 9 and 17-21*. *Claims 1-8, 10-16 and 22-24* are presented for further consideration and examination.

Drawings

4. The drawings (figures 5-6) are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "*root splitter reassignment logic*" must be shown "*to reassign one of said backup root splitters as a new primary root splitter responsive to detecting a problem with said primary root splitter*" or the feature(s) canceled from the claim(s). No new matter should be entered.

5. According to the current figure 5, it is not obvious how one of the *streaming splitters* 530-532, which are the *backup root splitters* according to the claims, can be reassigned as the new *primary splitter* “responsive to detecting a problem with said primary root splitter”. Specifically, there is only one data stream that enters each of the *streaming splitters* 520-522. Therefore, according to the claims, one or more of *streaming splitters* 530-532 are *backup root splitters*. Thus, for example, if there is a failure in *primary root streaming splitter* 521 which will require one of the *streaming splitters* 530-532 to be automatically reconfigured as the new *primary streaming root splitter*. However, according to figure 5 as well as the claims, it is not obvious as to what the new *primary root splitter* will be splitting once it has been automatically reconfigured after the old primary root splitter failed. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
6. According to the current figure 6, it is not obvious how one of the *leaf splitters* 631-635, which are the *backup root splitters* according to the claims, can be reassigned as the new *primary splitter* “responsive to detecting a problem with said primary root splitter”. Specifically, there is only one data stream that enters each of the *leaf splitters* 631-635. Therefore, according to the claims, one or more of *leaf splitters* 631-635 are *backup root splitters* to the *primary root splitter* 630. Thus, for example, if there is a failure in *primary root splitter* 630 which will require one of the *leaf splitters* 631-635 to be automatically reconfigured as the new *primary root splitter*. However, according to figure 6 as well as the claims, it is not obvious as to what the new *primary root splitter* will be splitting once it has been automatically reconfigured after the old primary root splitter failed. In other

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words, after *root splitter 630* failed, there is no data stream for the new primary root splitter to split. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

7. The drawings (figure 6) are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "*redirection subsystem*" must be shown to be included at POP site as claimed in *claim 3* or the feature(s) canceled from the claim(s). No new matter should be entered. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 11 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, according to the claims as well figure 6, it is not obvious as to what the new *primary root splitter* will be splitting once it has been automatically reconfigured after the old primary root splitter failed. In other words, after *root splitter 630* failed, there is no data stream for the new primary root splitter to split.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-2, 4, 11-12 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leighton et al. (US006665726B1) and in view of Gai et al. (US006032194A).

11. With regard to claims 1, 11 and 22, Leighton reference discloses,

- *a primary root splitter (splitter B5) to split a data stream (source signal) transmitted from an upstream server (source A) into a plurality of leaf splitter streams (concentrators C13-C20); (Leighton, col.1, lines 41-49; col.1, line 64 – col.2, line 2; fig.1-2)*

Leighton teaches of a "replication process to provide fault tolerance for a streaming signal in a computer network. In one embodiment, the original or source signal is sent to several splitters, which, in turn, each make copies of the signal and send the copies into a second layer of devices, which are referred to a 'concentrators'" (Leighton, col.1, line 64 – col.2, line 2). In other words, the root splitter split the original signal into identical streams of the original signal and these are fed into plurality of leaf splitters and so on until a copy of the original signal reaches the end users. In addition, according to Leighton, it is well known in the networking art that "a source signal (A) is sent to a splitter (B), which then

sends copies of the signal to [a first level of] splitters (C1-C10) ... [and then] each of the second level splitters then sends a copy of the signal to end customers..."

(Leighton, col.1, lines 43-46).

- *a plurality of leaf splitters (concentrators) to split each of said leaf splitter streams into a plurality of end user streams, (Leighton, col.1, lines 41-48; col.1, line 64 – col.2, line 2; col.2, lines 12-16; fig.1)*

Leighton teaches of a fault-tolerant replication process in which *"the output of a splitter or concentrator is fed directly or indirectly to an end user"* (Leighton, col.2, lines 15-16).

However, Leighton reference does not explicitly disclose,

- *wherein one or more of said plurality of leaf splitters is a backup root splitter;*
- *a monitoring subsystem to monitor the status of the primary root splitter; and*
- *an agent to reconfigure one of said backup root splitters as a new primary root splitter responsive to detecting a problem with said primary root splitter.*

Gai teaches,

- *wherein one or more of said plurality of leaf splitters is a backup root splitter;*
(Gai, col.5, lines 16-19, lines 24-27, lines 35-53; col.12, lines13-27; fig.3D)

Gai teaches of *"a method and apparatus for rapidly reconfiguring a computer network following a network change"* (Gai, col.1, lines 15-17) and more specifically an *"apparatus for defining primary and back-up root devices such that the back-up becomes the new root upon failure of the primary"* (Gai, col.5, lines 25-27).

- *a monitoring subsystem to monitor the status of the primary root splitter; and*
(Gai, col.5, lines 44-47; col.12, lines 4-12, lines 15-19).

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Gai teaches of a monitoring step in order to be able to detect a failure in the primary root device which will cause an immediate transition of a back-up root device to be the new primary root device.

- *an agent to reconfigure one of said backup root splitters as a new primary root splitter responsive to detecting a problem with said primary root splitter.* (Gai, col.5, lines 16-19, lines 35-53; col.12, lines13-27; fig.3D)

Gai teaches of *"a method and apparatus for rapidly reconfiguring a computer network following a network change"* (Gai, col.1, lines 15-17) and more specifically an *"apparatus for defining primary and back-up root devices such that the back-up becomes the new root upon failure of the primary"* (Gai, col.5, lines 25-27).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Gai reference with Leighton reference to *"enable fault tolerant media streaming over a computer network such as the Internet, an intranet, a virtual private network, or the like"* (Leighton, col.2, lines 47-50) by providing a *"method and apparatus for reducing the time necessary to reconfigure the network following a change, such as a link failure or recovery"* (Gai, col.5, lines 16-19). More specifically, Gai and Leighton, together, *"[define] primary and back-up root devices such that the back-up becomes the new root upon failure of the primary"* (Gai, col.5, lines 24-27) in a distribution system for streaming content over the Internet in a fault tolerant manner.

12. With regard to claims 2, 4, 12 and 23, Leighton and Gai references disclose,

See *claims 1, 11 and 22* rejection as detailed above.

Furthermore, Gai reference discloses,

- *further comprising a load balancer module to direct client streaming requests to particular leaf splitters based on relative load on said leaf splitters.* (Gai, col.16, lines 45-47, lines 58-59; col.17, lines 8-11, lines 29-31)

Gai teaches of a step that *"provides an even greater measure of load balancing with in the network"* (Gai, col.16, lines 58-59) *"by dividing the message streams among different groups"* (Gai, col.17, lines 29-31).

13. Claims 3, 5-7, 13-16 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leighton et al. (US006665726B1), in view of Gai et al. (US006032194A) and further in view of Kenner et al. (US006112239A).

14. With regard to claims 3, 13 and 24, Leighton and Gai references disclose,

See *claims 1, 11 and 22* rejection as detailed above.

However, Leighton and Gai do not explicitly disclose,

- *further comprising a redirection subsystem (mirror service provider MSP) to redirect client streaming requests to a particular point of presence site (delivery site).*

Kenner disclose,

- *further comprising a redirection subsystem (mirror service provider MSP) to redirect client streaming requests to a particular point of presence site (delivery site).* (Kenner, col.5, lines 9-12; col.15, lines 32-35; col.16, lines 62-67)

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Kenner reference with Gai and Leighton references

to enhance the performance of the network by choosing the best delivery sites to deliver the requested data to the end users. This determination can be made by perform ping and throughput tests and compare the results. Furthermore, the combination above would enhance the network by providing a fault tolerant system to prevent excessive network downtime due to failure.

15. With regard to claims 5-6 and 14-15, Leighton, Gai and Kenner references disclose,

See *claims 3 and 13* rejection as detailed above.

Furthermore, Gai reference disclose,

- *further comprising redirection subsystem update logic for notifying said redirection subsystem of said new primary root splitter responsive to said backup splitter being reconfigured as said new primary root splitter. (Gai, col.5, lines 16-19, lines 35-53; col.12, lines13-27; fig.3D)*

Gai teaches of “a method and apparatus for rapidly reconfiguring a computer network following a network change” (Gai, col.1, lines 15-17) and more specifically an “apparatus for defining primary and back-up root devices such that the back-up becomes the new root upon failure of the primary” (Gai, col.5, lines 25-27).

16. With regard to claims 7 and 16, Leighton, Gai and Kenner references disclose,

See *claims 1 and 11* rejection as detailed above.

Furthermore, Gai reference disclose,

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- *further comprising publish point update logic for updating publishing points within said system responsive to said backup root server being reassigned as said primary root server. (Gai, col.5, line 54 – col.6, line 5)*

17. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leighton et al. (US006665726B1), in view of Gai et al. (US006032194A) and further in view of Wallach et al. (US006292905B1).

18. With regard to claims 8 and 10, Leighton and Gai references disclose,

See *claim 1* rejection as detailed above.

Furthermore, Wallach reference disclose,

- *further comprising monitoring logic (monitor & LAN beat detector 322) for monitoring said primary root splitter to determine whether said root splitter is operating within normal parameters. (Wallach, col.2, lines 16-25; col.10, lines 4-11; col.12, lines 24-33; module 322, fig.7)*
- *wherein said monitoring logic receives a periodic heartbeat signal from said primary root splitter, and wherein not receiving said periodic heartbeat signal for one or more periods indicates a problem with said primary root splitter. (Wallach, col.2, lines 16-25; col.10, lines 4-11; col.12, lines 24-33; module 322, fig.7)*

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Wallach reference with Leighton and Gai references to enhance the network by providing a fault tolerant system to prevent excessive network downtime due to failure. This can be accomplished by actively monitoring

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the health of the primary server and immediately switch over to the backup server in case of a failure with the primary.

Response to Arguments

19. Applicant's arguments with respect to *claims 1-8, 10-16 and 22-24* have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

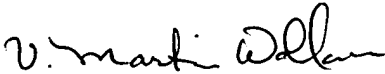
20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:
- Gai et al. (US006388995B1) relates generally to computer networks, and more specifically, to a method and apparatus for rapidly reconfiguring a computer network following a network change.
 - Schneider et al. (US005488716A) relates generally to fault tolerant computer systems and particularly to methods and systems for providing fault tolerance that is independent of the computer's operating system software.
 - Hirst et al. (US006173411B1) relates, in general, to fault-tolerant computing. More specifically, the present invention relates to methods and systems for quickly switching between network connections.
21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas Duong whose telephone number is 571/272-3911. The examiner can normally be reached on M-F 7:30AM - 4:00PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Valencia Martin-

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Wallace can be reached on 571/272-6159. The fax phone numbers for the organization where this application or proceeding is assigned are 703/872-9306 for regular communications and 703/872-9306 for After Final communications.

Thomas Duong (AU2145)

March 1, 2005


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